Chief Editor
Professor Barry G. Evans
Centre for Communication Systems Research
University of Surrey, Guildford, Surrey GU2 7XH, UK
Fax: +44 1483 686011 e-mail: b.evans@surrey.ac.uk

Editor, North America
Professor Anthony Ephremides
Centre for Satellite and Hybrid Communication Networks
University of Maryland, College Park, MD 20742, USA
Fax: +1 301 314 9281 e-mail: tony@eng.umd.edu

international journal of
satellite communications and networking

Editorial Board

M. Allman
ICSI, Ohio, USA

B. Arbesser-Rastburg
European Space Agency, Noordwijk, The Netherlands

M. Bousquet
SUPAERO, Toulouse, France

D. Chitre
ViaSat COMSAT Laboratories, Clarksburg, USA

P. Daly
University of Leeds, UK

J. Dutronc
EUTELSAT, Paris, France

T. A. Elbatt
HRL Laboratories, California, USA

D. Friedman
HNS, USA

P. Garland
EMS Technologies Canada Ltd, Quebec, Canada

T. Iida
CRL, Min Post & Telecom, Tokyo, Japan

Y. Ito
KDD R&D Laboratories, Saitama, Japan

S. Kota
Harris Corporation, California, USA

E. Lutz
DLR Institute for Communications Technology, Wessling, Germany

V. Magali
Astrium, Toulouse, France

G. Maral
France Telecom University, Toulouse, France

E. Modiano
MIT, Massachusetts, USA

A. Nordbotten
Telenor, Norway

B. A. Pontano
ViaSat COMSAT Laboratories, Clarksburg, USA

U. Reimers
Universität Braunschweig, Germany

E. Saggese
Telespazio, Rome, Italy

R. E. Sheriff
University of Bradford, UK

P. Stavroulakis
Technical University of Crete, Greece

P. T. Thompson
System Engineering for Satellites, UK

E. Trachtman
INMARSAT, London, UK

F. Vatalaro
University of Roma Tor Vergata, Rome, Italy

J. Wakeling
BT Satellite Systems, Martlesham Heath, UK

Zong Ru-Hou
First Research Institute of Ministry of PT, Shanghai, China

Purpose The *International Journal of Satellite Communications and Networking* provides a focus for professionals in all aspects of satellite communications. The Journal is unique in that it provides for a rapid dissemination of new results and trends in this constantly changing industry. In addition to areas of specific interest the Journal regularly includes items of general interest and tutorials.

Range of topics The Journal covers all aspects of the theory and practice of satellite systems and networks. Topics include: Communication Systems and Equipment, Earth-station Equipment and Planning, Earth-station Antennas, Application of Satellite Systems, Propagation Aspects including Interference and Coordination, Network Philosophy and Planning, Spacecraft Communications Payloads, User Aspects e.g. Marketing and Regulatory Matters.

international journal of
satellite communications
and networking

Journal Information

SUBSCRIPTIONS

The *International Journal of Satellite Communications and Networking* (Print ISSN 1542-0973; Online ISSN 1542-0981 at Wiley InterScience, www.interscience.wiley.com) is published bimonthly (6 issues in total) by John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, UK.

Subscription rates: Volume 22 2004 6 issues

Print only US$1,915. Electronic only US$1,915. A combination price of US$2,107 includes the subscription in both electronic and print formats.

Prices for individuals are available on request. To subscribe, please contact Journals Subscriptions Department, John Wiley & Sons, Ltd, 1 Oldlands Way, Bognor Regis, West Sussex PO22 9SA, UK

Tel: +44 (0) 1243 779777 Fax: +44 (0) 1243 843232 e-mail: cs-journals@wiley.co.uk

Sample copies. If you are interested in subscribing, you may obtain a free sample copy by contacting John Wiley & Sons, Ltd at the above address.

SERVICES

Advertisements and bulk reprints.
Advertisement Sales Department, John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, UK.
Tel: +44 (0) 1243 770351 Fax: +44 (0) 1243 770432 e-mail: adsales@wiley.co.uk

General enquiries: Tel: +44 (0) 1243 779777 Fax: +44 (0) 1243 775878

ABSTRACTING AND INDEXING

The *International Journal of Satellite Communications and Networking* is covered by the following abstracting and indexing services: 'Current Contents®/Engineering, Computing & Technology (ISI)'; 'Ei COMPENDEX PLUS'; 'Ei Page One'; 'Information Reports & Bibliographies'; 'INSPEC'; 'International Aerospace Abstracts & Database'; 'ISI Alerting Services'; 'Science Citation Index Expanded (also known as SciSearch®) (ISI)'; 'Telecommunications Abstracts'; and 'Telescope Networks'.

COPYRIGHT

Copyright © 2004 John Wiley & Sons, Ltd

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a licence issued by the national Reproduction Rights Organization (such as Copyright Licensing Agency, 90 Tottenham Court Road, London W1P 9HE, UK or Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970, USA).

The price for copies made under the CCC or other licences is US$30.00 (*Int. J. Satell. Commun. Network.*, 1542-0973/2001).

Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinions of John Wiley & Sons, Ltd. Wiley assumes no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. Wiley expressly disclaims any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:
Nicole Burnett e-mail: nburnett@wiley.co.uk

Production details. Printed on acid free paper. Typeset by Macmillan (India) Ltd, Bangalore, India. Printed and bound in Great Britain by Page Bros, Norwich.

Identification statement. The *International Journal of Satellite Communications and Networking* (ISSN 1542-0973/USPS 706-410) is published bi-monthly by John Wiley & Sons, Ltd, The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, UK. Periodicals postage paid at Jamaica, NY 11431. Air freight and mailing in the USA by Publications Expediting Services Inc., 200 Meacham Ave., Elmont, NY 11003, USA.

USA POSTMASTER – send address changes to *International Journal of Satellite Communications and Networking*, c/o Publications Expediting Services Inc., 200 Meacham Ave., Elmont, NY 11003, USA.

International Journal of
Satellite Communications

CONTENTS

Volume 22 Numbers 1–6

Volume 22 Number 1 January–February 2004

Special Issue on Europe's Fifth Framework Satellite Communications Research Programme
Guest Editor: Ray Sheriff

Guest Editorial: Satellite Communications research under the EC's Fifth Framework Programme: R. Sheriff 1

Satellite Communications: The contribution of the 5th framework programme and future perspectives: B. Barani 5

End-to-end QoS and global mobility management in an integrated satellite/terrestrial network: P. Conforto, C. Tocci, V. Schena, L. Secondiani, N. Blefari-Melazzi, P. M. L. Chan and F. Delli Priscoli 19

GAUSS satellite solution for location-based services: A. Di Fazio, G. Mocci, E. Rossini, G. D'Angelo, A. Lorelli and A. Jarosh 55

S-UMTS access network for broadcast and multicast service delivery: the SATIN approach: K. Narenthiran, M. Karaliopoulos, B. G. Evans, W. De-Min, M. Dieudonne, P. Henrio, M. Mazzella, E. Angelou, I. Andrikopoulos, P. I. Philippopolous, D. I. Axiotis, N. Dimitriou, A. Polydoros, G. E. Corazza and A. Vanelli-Coralli 87

Advances of aeronautical communications in the EU framework: M. Holzbock, Y.-F. Hu, A. Jahn and M. Werner 113

Multimedia services with QoS support in an integrated terrestrial and satellite UMTS network demonstrator: the IST VIRTOUS project: F. Del Sorbo and F. Delli Priscoli 139

Discover this journal online at
WILEY InterScience®
DISCOVER SOMETHING GREAT
www.interscience.wiley.com

IJSCEF 22(1–6) 1–644 (2004)
ISSN 0737–2884

Volume 22 Number 2 March–April 2004

Next generation satellite systems for aeronautical communications: O. Ercetin, M. O. Ball and L. Tassiulas 157

A new multi-state fading model for mobile satellite channels based upon AFD and LCR data: D. W. Matolak 181

W-band physical layer design issues in the context of the DAVID-DCE experiment: C. Sacchi, G. Gera and C. S. Regazzoni 193

Integrating the scene length characteristics of MPEG video bitstreams into a direct broadcast satellite network with return channel system: F. Alagoz 217

Satellite handover techniques for LEO networks: E. Papapetrou, S. Karapantazis, G. Dimitriadis and F. N. Pavlidou 231

Volume 22 Number 3 May–June 2004

Special Issue on The DVB-S2 Standard for Broadband Satellite Systems
Guest Editors: Alberto Morello and Ulrich Reimers

Guest Editorial: A. Morello and U. Reimers 247

DVB-S2, the second generation standard for satellite broadcasting and unicasting: A. Morello and U. Reimers 249

DVB-S2 low density parity check codes with near Shannon limit performance; M. Eroz, F.-W. Sun and L.-N. Lee 269

DVB-S2 modem algorithms design and performance over typical satellite channels: E. Casini, R. de Gaudenzi and A. Ginesi 281

Frame synchronization and pilot structure for second generation DVB via satellite: F.-W. Sun, Y. Jiang and L.-N. Lee 319

DVB-S2 backward-compatible modes: a bridge between the present and the future: E. Chen, J. L. Koslov, V. Mignone and J. Santoru 341

DVB-S2 ACM modes for IP and MPEG unicast applications: R. Rinaldo, M. A. Vasquez-Castro and A. Morello 367

Capacity analysis and system optimization for the forward link of multi-beam satellite broadband systems exploiting adaptive coding and modulation: R. Rinaldo and R. de Gaudenzi 401

Volume 22 Number 4 July–August 2004

Capacity analysis and system optimization for the reverse link of multi-beam satellite broadband systems exploiting adaptive coding and modulation: R. Rinaldo and R. de Gaudenzi 425

Seasonal and diurnal variations of total attenuation measured with the ITALSAT satellite at Spino d'Adda at 18.7, 39.6 and 49.5 GHz: C. Riva 449

Volume 22 Number 5 September–October 2004

Special Issue: Recent Advances in Mobile Satellite Systems
Guest Editor: Giovanni E. Corazza

Guest Editorial – IJSC Special Issue on ASMS2003: G. E. Corazza 477

The task force on advanced satellite mobile systems: structure, objectives and vision: G. E. Corazza and G. J. King 479

Layered coding for satellite-plus-terrestrial multipath correlated fading channels: A. Levissianos, G. Metaxas, N. Dimitriou and A. Polydoros 489

Packet scheduling for the delivery of multicast and broadcast services over S-UMTS: M. Karaliopoulos, P. Henrio, K. Narenthiran, E. Angelou and B. G. Evans 503

The impact of different scheduling policies on traffic class dependent routing in intersatellite link networks: G. Kandus, A. Svigelj and M. Mohorcic 533

TCP Hybla: a TCP enhancement for heterogeneous networks: C. Caini and R. Firrincieli 547

System design, capacity dimensioning and revenue estimation for aeronautical communications via satellite: M.Werner, L. Battaglia and M. Holzbock 567

Volume 22 Number 6 November–December 2004

Mobile Internet access using satellite networks: P. Loreti, M. Luglio, R. Kapoor, J. Stepanek, M. Gerla, F. Vatalaro and M. A. Vazquez-Castro 587

Transport protocols in multicast via satellite: G. Akkor, M. Hadjitheodosiou and J. S. Baras 611

A capture-assisted random access scheme for multi-beam LEO satellite packet data networks: G. Thomas 629

Abstracted/indexed by 'Current Contents®/Engineering, Computing & Technology (ISI)'; 'Ei COMPENDEX PLUS'; 'Ei Page One'; 'Information Reports & Bibliographies'; 'INSPEC'; 'International Aerospace Abstracts & Database'; 'ISI Alerting Services'; 'Science Citation Index Expanded (also known as SciSearch®) (ISI)'; 'Telecommunications Abstracts'; and 'Telescope Networks'